

Application No. 09/713,177
Amendment Dated June 2, 2003
Reply to Office Action of March 11, 2003

REMARKS/ARGUMENTS

By this Amendment, the specification is amended. Claims 1-63 are pending.

Favorable reconsideration is respectfully requested in view of the foregoing amendments and the following remarks.

Claims 1-6, 13, 24-29, 34, 36 and 62-63 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Eckhart et al. (J. Biol. Chem., Vol. 274, No. 5, pp. 2613-2615, 1999) in view of Deng et al. (Biopolymers, Vol. 35, No. 6, pp. 677-81, 1995). This rejection is respectfully traversed.

Base claims 1 and 24 specify that at least one of the probe nucleobase sequence and the target nucleobase sequence is double-stranded and is bonded to the other of the probe nucleobase sequence or the target nucleobase sequence solely through Watson-Crick base triplets.

It appears that the Office Action is asserting that Eckhart et al. teaches a catalytic hybridization composition and assay in which a multiplex is formed, but not a Watson-Crick bonded multiplex. The Office Action proposes to remedy this deficiency by modifying the teachings of Eckhart et al. with the teachings of Deng et al. According to the Office Action, Deng et al. teaches parameters for forming Watson-Crick base paired multiplexes, and would have motivated one of ordinary skill in the art to modify the teachings of Eckhart et al. to achieve the enhanced stability of Watson-Crick multiplexes allegedly taught by Deng et al.

As indicated by its title, Deng et al. discloses "Duplex to Quadruplex Equilibrium of the Self-Complementary Oligonucleotide d(GGGGCCCC)." The quadruplex conformation of the equilibrium is depicted in Fig. 3 of Deng et al. This quadruplex consists of "several G quartets

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[stacked] upon each other to form a quadruplex structure." Deng et al. at p. 667, column 1, paragraph 1. Fig. 3 of Deng et al. suggests that the four strands of the quadruplex are associated solely by Hoogsteen base pairing, not Watson-Crick bonding. None of the guanosines of any one strand are bonded to the cytosines of another strand of the quadruplex structure shown in Fig. 3, as would be the case for Watson-Crick bonding. Thus, the Office Action fails to make a *prima facie* showing of obviousness because the alleged motivation to combine is based on a faulty premise.

Moreover, combining the actual teachings of Deng et al. with the alleged teachings of Eckhart et al. fails to meet all the features of the rejected claims. The claims require a multiplex (e.g., a triplex) comprising a probe bonded to a target solely through Watson-Crick triplets. The specification at page 12, lines 18-22, defines Watson-Crick triplets as "A-T-A, T-A-T, U-A-T, T-A-U, A-U-A, U-A-U, G-C-G and/or C-G-C (including C⁺-G-C, and/or any other ionized species of base)." The only multiplex of at least three strands disclosed in Eckhart et al. is shown in Fig. 3C, and is described as a "heteroduplex-duplex" in which adjacent single-stranded loops of adjacent duplexes "might interact through base pairing" as indicated by the double arrows in Fig. 3C. If there is bonding between the single-stranded loops, it would not comprise Watson-Crick triplets as required by the present claims, since bases of a third strand would not be in any position to interact with the bonded loop bases.

Deng et al. cannot remedy this deficiency of Eckhart et al., as Deng et al. shows four strands of a quadruplex associated solely by Hoogsteen base pairing between adjacent guanines (G:G:G:G), not Watson-Crick triplets.

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Accordingly, reconsideration and withdrawal of the obviousness rejection over Eckhart et al. in view of Deng et al. are respectfully requested.

Claims 1-63 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Eckhart et al. in view of U.S. Patent No. 6,420,115 to Erikson et al. ("the '115 patent") This rejection is respectfully traversed.

Eckhart et al. fails to disclose or suggest the claimed invention for at least the reasons noted above.

The '115 patent discloses and claims Applicants' invention in triplex complexes and associated uses. The '115 patent, like this application, is a continuation-in-part of U.S. Patent Application Serial No. 09/468,679 (the '679 application), filed December 21, 1999, now U.S. Patent No. 6,403,313. The foregoing amendment renders this application a continuation-in-part of the '115 application (i.e., U.S. Patent Application No. 09/613,263, filed July 10, 2000). The claim for continuity satisfies the six conditions set forth in MPEP 201.11: (A) the later-filed application (this one) is an application for an invention which is also disclosed in the prior application (the '115 patent, as evidenced by the rejection in view of it); (B) the applications were copending, since this application was filed during the pendency of the earlier application; (C) this application now contains a specific reference to the earlier application in the specification; (D) this application was filed by inventors named in the earlier application; (E) this application was filed before November 29, 2000, and thus the time limits for making benefit claims under 35 U.S.C. § 120 do not apply; and (F)

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benefit to a provisional application filed in a language other than English is not being claimed, so the requirement for a translation does not apply.

In view of the change in status of the '115 patent, the obviousness rejection of claims 1-63 under 35 U.S.C. § 103(a) should be withdrawn.

For at least the reasons set forth above, it is respectfully submitted that the above-identified application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are respectfully requested.

Should the Examiner believe that anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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